## DETAILED ACTION

### *Election/Restrictions*

Claims 3-4, 7-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 1/25/2010.

The traversal is on the ground(s) that a previous rejection was already made in response to previous and different claims. This is not found persuasive because a restriction requirement may be made at any time before final action (MPEP 801; 37CFR 1.142). Also it is noted that the claims are substantially amended from the original claims, and therefore the requirement is proper since the requirement is based on the features of the current claims not the previous claims. The requirement is still deemed proper and is therefore made FINAL.

### *Specification*

Amendments to the specification dated 08/19/2009 are accepted.

### *Drawings*

The drawings were received on 08/19/2009. These drawings are accepted.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Irie (US 2004/0068993) hereafter Irie. With regard to claim 1, Irie teaches a method (see all figures and full disclosure) for controlling temperature in a boil-off gas in a liquefaction plant prior to compression, wherein boil-off gas originating from an LNG storage tank (1) is compressed (via 3, 4) and at least partially condensed into a condensed boil-off gas (via 5), and wherein said condensed boil-off gas is returned to the storage tank (1), said method comprising: heat exchanging the boil-off gas with a condensed liquefied gas (LNG) (part of liquid in 13 that is vaporized in 2) through a wall (of pipe to 14 in 2) separating said boil-off gas from said condensed liquefied gas (LNG), the boil-off gas temperature being lowered and said condensed liquefied gas LNG being fully evaporated as a fully evaporated LNG (after being sprayed in 2; also in view of Figure 1 structure of 2); and controllably mixing said fully evaporated LNG with said boil-off gas (mixing of evaporated LNG and cooled boil off gas occurring within 2). With regard to claim 5, Irie teaches a continuous flow of LNG and boil-off gas is maintained in said heat exchanging step (to manage boil off gas flows are continually employed, parag. 10), whereby the LNG temperature is substantially constant (parag. 12, temperature constant).

Claims 1-2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Nelson (US 5036671). With regard to claim 1, Nelson teaches a method (see all figures and full disclosure) for controlling temperature in a boil-off gas in a liquefaction plant prior to compression, wherein boil-off gas (56) originating from an LNG storage tank (54) is compressed (via 64, 89, 142) and at least partially condensed into a condensed boil-off gas (via 140), and wherein said condensed boil-off gas is returned to the storage tank (54), said method comprising: heat exchanging the boil-off gas (in 145) with a condensed liquefied gas (LNG) (78) through a wall (in heat exchanger 140) separating said boil-off gas from said condensed liquefied gas (LNG) (78), the boil-off gas (in 12) temperature being lowered and said condensed liquefied gas LNG (78) being fully evaporated as a fully evaporated LNG (82; column 6, line 35); and controllably mixing said fully evaporated LNG with said boil-off gas (via lines 82 and 62; note that the mixing is upstream of the heat exchange as the incoming boil off is added to the evaporated LNG upstream of the boil off gas's entry to the heat exchanger via heat exchange line 12). With regard to claim 2, Nelson teaches that said mixing of said fully evaporated LNG with said boil-off gas occurs upstream of said heat exchange. With regard to claim 5, Nelson teaches a continuous flow of LNG and boil-off gas is maintained in said heat exchanging step (in 140), whereby the LNG temperature is substantially constant (column 6, lines 15-17).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Irie in view of Seki (US 4015436). Irie teaches most of the claim limitations, but does not explicitly teach that the mixing rate is controlled by comparing the temperature of the boil off gas downstream of said heat exchange, with at least one predetermined temperatures. However, Seki teaches that the temperature of the gas at the inlet to the gas pump (1) is monitored (column 2, lines 40-45) and used to control the mixing of liquefied gas with the boil off gas for the purpose of maintaining more constant conditions (column 1, lines 40-45) and reducing the power wasted in assuring the inlet conditions to the gas pump (1; column 1, lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Irie with the temperature control means of Seki for the purpose of maintaining more constant conditions (column 1, lines 40-45) and reducing the power wasted in assuring the inlet conditions to the gas pump (1; column 1, lines 20-25).

### *Response to Arguments*

Applicant's arguments filed 08/19/2009 have been fully considered but they are not persuasive.

1. Applicant's arguments (page 13) are that there is no indirect heat transfer before mixing. In response to the applicant's arguments, the examiner disagrees and directs the applicant to the indirect heat exchange through the pipe (with 14) wall prior to mixing and therefore the teachings of Irie meet the claim limitations as shown above in the rejection.

2. Applicant's arguments (page 14-18) are moot in view of the new grounds of rejection.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Pettitt whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John F Pettitt /
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art Unit 3744

JFP III
April 21, 2010